



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/573,398

03/23/2006

Tim Fiedler

502902-229PUS

5419

27799

7590

04/25/2008

COHEN, PONTANI, LIEBERMAN & PAVANE  
551 FIFTH AVENUE  
SUITE 1210  
NEW YORK, NY 10176

EXAMINER

KOSLOW, CAROL M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

04/25/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/573,398	<b>Applicant(s)</b> FIEDLER ET AL.	
	<b>Examiner</b> C. Melissa Koslow	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 20 is/are rejected.
- 7) ☒ Claim(s) 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/23/06; 7/28/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

The foreign in reference cited in the information disclosure statement filed 23 March 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The drawings are objected to because the figures contain copy marks and illegible handwritten numbering.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: references numbers 5-8 in figure 11.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The disclosure is objected to because of the following informalities:

The application numbers for the related applications discussed on page 1 of the specification need to be provided. The EP publication number for the unpublished application EP

02021227.8 needs to be provided. The brief description of the drawings needs to refer to each of the parts of figure 5. The variable c is not defined. Finally, the description of figure 11 does not correspond with what is shown by the figure. Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The subject matter of claims 2 and 6 and the wavelength range of claim 16 are not found in the specification. The specification teaches the phosphor containing 5 and 10 mol% Eu. These teachings do not provide antecedent basis for the subject matter of claim 2. Page 4 teaches manganese is a co-activator. This teaching does not provide antecedent basis for the subject matter of claim 6. Finally, the specification is silent as to the wavelength of the disclosed red phosphors.

Claim 11 is objected to because of the following informalities: “ $\Theta$ ” is missing from “angle 2  $\Theta$ ”. Appropriate correction is required.

The narrow phrase or number range after the phrases “in particular”, “and is in particular” and “preferably” in the claims have been given no patentable weight. This is because the phrase or number range after the phrases are examples of the broad term or range and claims are given their broadest interpretation. Applicants may add dependent or independent claims directed to the above narrow phrase or range.

Claims 3, 4 and 6 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

Art Unit: 1793

art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Page 7 teaches a portion of Sr can be replaced with up to 10 mol% Ba; up to 30 mol% Ca and/or Zn or up to 20 mol% La or Li. This teaching is different from that of claims 3 and 4. The discrepancy in the substitution amounts and compositions need to be clarified.

Claims 1, 2, 4, 7 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite since the variable c is not defined. Claim 2 recites the limitation "the Eu fraction". There is insufficient antecedent basis for this limitation in the claim or in claim 1. Claim 4 is indefinite since claim 1 defines M as Sr or  $Sr_{1-x-y}Ca_xBa_y$ . Thus it is unclear how M can have the definition of claim 4. The term "as low as possible" in claim 7 is a relative term which renders the claim indefinite. The term is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claim 16 is indefinite since it refers to a third phosphor, but there is no second phosphor taught in this claim or in claim 13 from which it depends.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

Art Unit: 1793

*Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-6 and 8-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application No. 10/572,891. Although the conflicting claims are not identical, they are not patentably distinct from each other because the phosphor and device claimed in the copending application suggest those claimed in this application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-6 and 8-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 8-13 and 16 of copending Application No. 10/574,021. Although the conflicting claims are not identical, they are not patentably distinct from each other because the phosphor and device claimed in the copending application suggest those claimed in this application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-6 and 8-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11 and 14 of copending

Art Unit: 1793

Application No. 10/574,026. Although the conflicting claims are not identical, they are not patentably distinct from each other because the phosphor and device claimed in the copending application suggest those claimed in this application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-3, 6, 13-17 and 20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11-13 of copending Application No. 11/256,567. Although the conflicting claims are not identical, they are not patentably distinct from each other because the phosphor, process and device claimed in the copending application suggest those claimed in this application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 8-13, 15 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 7,061,024.

This reference teaches a green emitting phosphor having the formula  $\text{Sr}_{0.96}\text{Si}_2\text{N}_2\text{O}_2:\text{Eu}_{0.04}$ , which falls within the claimed formula. Since the phosphor emits green light, it must have in the

Art Unit: 1793

high-temperature stable modification HT form and have the properties of claims 9-12, absent any showing to the contrary. The reference teaches a white light emitting device comprising a blue InGaN LED which emits 450 nm, this phosphor and a red phosphor. The reference teaches the claimed phosphor and device.

Claims 1, 2 and 8-16 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent application 2005/0156496.

This reference teaches a yellow-green phosphor having the formula  $(\text{Sr}_{1-x}\text{Eu}_x)\text{Si}_2\text{O}_2\text{N}_2$ , where x is 0.015-0.2 (table 3 and 4), which corresponds to 0.1-20 mol% of Sr. Since the phosphor emits yellow-green light, it must have in the high-temperature stable modification HT form and have the properties of claims 9-12, absent any showing to the contrary. The reference teaches a white light emitting device comprising a UV LED which emits 250-420 nm, such as an InGaN LED, this phosphor, a second phosphor and a red phosphor. The reference teaches the claimed phosphor and device.

Claims 1, 2 and 8-16 are rejected under 35 U.S.C. 102(a) as being anticipated by WO 2004/039915.

U.S. patent application publication 2006/0076883 is the national stage application for WO 2004/039915 and thus U.S. patent application publication 2006/0076883 is the English translation for WO 2004/039915.

This reference teaches a yellow-green phosphor having the formula  $(\text{M}_{1-x}\text{Eu}_x)\text{Si}_2\text{O}_2\text{N}_2$ , where M is Sr and x is 0.005-0.15 (para 307) or M is  $\text{Sr}_{1-y}\text{Ca}_y$ , where y is 0.1-0.4 and x is 0.0043 (examples). Since the phosphor emits yellow-green light, it must have in the high-temperature stable modification HT form and have the properties of claims 9-12, absent any showing to the



Art Unit: 1793

contrary. The reference teaches a white light emitting device comprising a UV-blue LED which emits 360-480nm, such as an InGaN LED, this phosphor, a second phosphor and a red phosphor.

The reference teaches the claimed phosphor and device.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,717,353.

This reference teaches a green emitting phosphor having the formula  $(\text{Sr}_{1-a-b-c}\text{Ca}_b\text{Ba}_c)\text{Si}_x\text{N}_y\text{O}_z:\text{Eu}_a$ , a is 0.002-0.2, b is 0-0.25, c is 0-0.25, x is 1.5-2.5, y is 1.5-2.5 and z is 1.5-2.5. This formula overlaps that claimed and since it emits green light, it must have in the high-temperature stable modification HT form and have the properties of claims 9-12, absent any showing to the contrary. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference also teaches a white light emitting light source comprising a known UV emitting Group III nitride LED, the taught green phosphor, a blue phosphor and a red phosphor. The wavelength emitted by the UV LED falls within that claimed. While the reference does not teach InGaN LED, it teaches the use of any known UV emitting Group III nitride LED, which includes those claimed. The reference suggests the claimed phosphor and device.

Claims 1-4 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 7,061,024.

This reference teaches a green emitting phosphor having the formula  $(\text{Sr}_{1-a-b}\text{Ca}_b\text{Ba}_c\text{Zn}_e\text{Si}_x\text{N}_y\text{O}_z:\text{Eu}_a$ , a is 0.002-0.2, b is 0-0.25, c is 0-0.25, e is 0-0.25, x is 1.5-2.5, y is 1.5-2.5 and z is 1.5-2.5. This formula overlaps that claimed and since it emits green light, it must have in the high-temperature stable modification HT form and have the properties of claims 9-12, absent any showing to the contrary. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference teaches a white light emitting device comprising a blue InGaN LED which emits 450 nm, this phosphor and a red phosphor. The reference suggests the claimed phosphor and device.

Claims 1-5 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent application publication 2005/1056496.

This reference teaches a yellow-green phosphor having the formula  $(\text{M}_{1-x}\text{Eu}_x)\text{Si}_2\text{O}_2\text{N}_2$ , where x is 0.0001-0.5 and M is at least one of Sr, Ca, Ba and Zn (para 146 and 280). Thus the reference suggest M can be Sr,  $(\text{Sr}_{1-y}\text{M}_y)$  and  $(\text{Sr}_{1-yz}\text{M}_y\text{Zn}_z)$ , where M is Ca and/or Ba,  $0 < y < 1$  and  $0 < z < 1$ . These compositions overlap that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). Since the phosphor emits yellow-green light, it must have in the high-temperature stable modification HT form and have

Art Unit: 1793

the properties of claims 9-12, absent any showing to the contrary. Paragraph 275 suggests a phosphor having the formula  $LSi_2Al_tO_2N_{2+t}:Eu$  where L has the same meaning as M and  $0 < t < 0.5$ . Thus the phosphor of claim 5 is suggested by the reference. The reference teaches a white light emitting device comprising a UV LED which emits 250-420 nm, such as an InGaN LED, this phosphor, a second phosphor and a red phosphor. The reference suggests the claimed phosphor and device.

Claims 1-5 and 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 2004/039915.

U.S. patent application publication 2006/0076883 is the national stage application for WO 2004/039915 and thus U.S. patent application publication 2006/0076883 is the English translation for WO 2004/039915.

This reference teaches a yellow-green phosphor having the formula  $(M_{1-x}Eu_x)Si_2O_2N_2$ , where x is 0.005-0.15 and M is at least one of Sr, Ca, Ba and Zn (para 146 and 280). Thus the reference suggest M can be Sr,  $(Sr_{1-y}M_y)$  and  $(Sr_{1-yz}M_yZn_z)$ , where M is Ca and/or Ba,  $0 < y < 1$  and  $0 < z < 1$ . These composition overlaps that claimed. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). Since the phosphor emits yellow-green light, it must have in the high-temperature stable modification HT form and have the properties of claims 9-12, absent any showing to the contrary. The reference also suggests a phosphor having the formula  $LSi_2Al_tO_2N_{2+t}:Eu$  where L has the same meaning as M and  $0 < t < 0.5$ . Thus the phosphor of claim 5 is suggested by the reference. The reference teaches a white light

Art Unit: 1793

emitting device comprising a UV-blue LED which emits 360-480 nm, such as an InGaN LED, this phosphor, a second phosphor and a red phosphor. The reference suggests the claimed phosphor and device.

Claim 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

There is no teaching or suggestion in the cited art of record of the process of claims 18 and 19.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/  
April 24, 2008

/C. Melissa Koslow/  
Primary Examiner  
Art Unit 1793